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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,580	05/15/2001	Qian Lin	10006299	8971

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
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EXAMINER

HUNG, YUBIN

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 08/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/854,580

Applicant(s)

LIN ET AL.

Examiner

Yubin Hung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-12, 14-18, 20, 21 and 25-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-12, 14-18, 20, 21 and 25-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment filed 06/14/05, which has been entered.
2. Claims 5, 13, 19, 22-24 have been canceled and claims 27-29 have been added; claims 1-4, 6-12, 14-18, 20, 21 and 25-29 are still pending.
3. In view of Applicant's amendment, the 35 U.S.C. 102 and 103 rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kado et al. (US 6,181,806) and Center, Jr. et al. (US 6,680,745). See detailed action below.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/14/2005 has been entered.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-4, 6-12, 14-18, 20, 21 and 25-29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Specifically, independent claim 1, and similarly amended claims 8, 15 and 21, was amended to include the following limitations: (1) automatically measuring at least one of lightness levels, contrast levels, and color levels of the human faces and (2) automatically enhancing an appearance of the image *based on the measured at least one of lightness levels, contrast levels, and color levels of the **human faces** in the image* by changing at least one of lightness levels, contrast levels, and color levels of the images. The support was alleged to be in page 5, lines 9-12 of the specification.

However, lines 9-12 of page 5 merely state that after faces are detected the image can be modified (enhanced) using, e.g., mapping techniques, in order to have preferred appearances. Nothing is said about using the measurement (e.g., contrast level) of the human faces to carry out such enhancement.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1, 2, 8, 10, 15, 16, 21 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schildkraut et al. (US 6,292,574) and Kado et al. (US 6,181,806).

9. Regarding claim 1, similarly claims 8, 15 and 21, Schildkraut discloses:

- automatically detecting human faces in an image using face detection algorithms and automatically locating the human faces in the image [Fig. 2, numeral S10; Fig. 6; Col. 4, line 13-Col. 5, line4]

Schildkraut does not expressly disclose

- automatically measuring at least one of lightness levels, contrast levels, and color levels of the human faces
- automatically enhancing an appearance of the image based on the measured at least one of lightness levels, contrast levels, and color levels of the human faces in the image by changing at least one of lightness levels, contrast levels, and color levels of the images

However, Kado discloses automatically measuring brightness (i.e., lightness levels) of human faces [Fig. 14, ref. 16 and col. 7, lines 33-36] and automatically enhances the image's brightness based on the measure brightness [col. 7, lines 44-46].

Schildkraut and Kado are combinable because they both have aspects that are from the same field of endeavor of face detection.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Schildkraut with the teachings of Kado by measuring the brightness of the faces in order to change the image by changing its brightness levels. The motivation

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would have been to prevent misjudgment due to difference in the position of the light source, as Kado indicated in column 7, lines 24-26.

Therefore, it would have been obvious to combine Kado with Schildkraut to obtain the invention as specified in claim 1.

10. Regarding claim 2, and similarly claims 10 and 16, Kado further discloses

- wherein the module for enhancing the appearances of the image includes a module for automatically enhancing lightness levels of the human faces [Fig. 14, ref. 16 and col. 7, lines 44-46]

11. Regarding claim 27, and similarly claims 28 and 29, Schildkraut further discloses

- automatically locating eyes in the human faces [Fig. 2, numerals S16-S30; Figs. 9, 11]

12. Claims 3-4, 11-12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schildkraut et al. (US 6,292,574) and Kado et al. (US 6,181,806) as applied to claims 1, 2, 8, 10, 15, 16, 21 and 27-29 above, further in view of Center, Jr. et al. (US 6,680,745).

13. Regarding claims 3-4, and similarly claims 11-12 and 17-18, the combined invention of Schildkraut and Kado discloses everything except the following, which Center teaches:

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- wherein the module for enhancing the appearances of the image includes a module for automatically enhancing contrast levels (claim 3) or color levels (claim 4) of the human faces [Fig. 1; col. 2, lines 55-60. Note that while Center discloses adjusting the camera's settings, one of ordinary skill in the art would have recognized that such changes can be achieved by image processing means; see, for example, the analysis of claim 2 above in which Kado is relied upon for enhancing brightness]

The combined invention of Schildkraut and Kado is combinable with Kato because they have aspects that are from the same field of endeavor of face detection.

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to modify the combined invention of Schildkraut and Kado with the teaching of Center by enhancing an appearance of the image by changing the contrast and/or color (in addition to changing brightness as Kado disclosed). The motivation would have been to obtain better images, as Center indicated in column 2, lines 55-60.

Therefore, it would have been obvious to combine Center with Schildkraut and Kato to obtain the inventions as specified in claims 3 and 4, respectively.

14. Claims 6, 14, 20 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schildkraut et al. (US 6,292,574) and Kado et al. (US 6,181,806), as applied to claims 1, 2, 8, 10, 15, 16, 21 and 27-29 above, further in view of Acker et al. (US 6,009,209).

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15. Regarding claim 6, and similarly claims 14, 20 and 25, the combined invention of Schildkraut and Kado discloses all limitations except the following, which Acker et al. teaches:

- reducing or removing the red eye artifact from the human faces [Fig. 5, numeral 109; Fig. 9, numeral 504; Fig. 11; Fig. 13]

The combined invention of Schildkraut and Kado is combinable with Acker because they have aspects that are from the same field of endeavor of red eye detection.

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to modify the combined invention of Schildkraut and Kado with the teaching of Acker et al. by detecting and removing red-eye effects from the image. The motivation would have been to remove the unpleasant appearance of red-eye defects in an image of a person's face caused by, e.g., a flash when the image was taken in order to produce a more natural-looking face.

Therefore, it would have been obvious to combine Acker et al. with Schildkraut and Kado to obtain aspects of the invention as specified in claim 6.

16. Claims 7 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Schildkraut et al. (US 6,292,574) and Kado et al. (US 6,181,806) as applied to claims 1, 2, 8, 10, 15, 16, 21 and 27-29 above, further in view of Fowler (US 5,410,618).

17. Regarding claim 7, and similarly claim 26, the combined invention of Schildkraut and Kado discloses everything except the following, which Fowler teaches:

- the enhancing step includes using a mapping technique to produce the image with target levels for a mean value or a variation value
[Col. 1, lines 39-40 (global enhancement); Fig. 1, numerals 5, 6; Col. 3, lines 15-30 (local enhancement). Note that when applied to the entire image, local enhancement becomes global enhancement and *vice versa*]

The combined invention of Schildkraut and Kado is combinable with Fowler because they have aspects that are from the same field of endeavor of image enhancement.

Therefore, at the time of the invention it would have been obvious to one of ordinary skill in the art to modify the combined invention of Schildkraut and Kado with the teaching of Fowler by using a mapping technique to produce the image with target levels for a mean value or a variation value. The motivation would have been to give a user better control in the enhancement process so that the resultant image can have a desired appearance or perceptual quality specific to the user's preference.

Therefore, it would have been obvious to combine Fowler with Schildkraut and Kado to obtain the invention as specified in claim 7.

Conclusion and Contact Information

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Wang et al. (US 6,035,055) – discloses a digital image management system that adjusts the brightness and contrast of detected faces [see col. 10, lines 5-16]
- Lambert (US 5,012,522) – discloses a face recognition machine that enhances the contrast of the face image [see col. 5, lines 14-22]

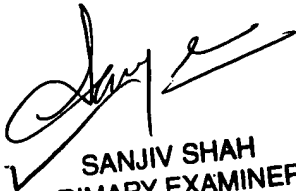
19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Yubin Hung
Patent Examiner
August 11, 2005



SANJIV SHAH
PRIMARY EXAMINER